PMS11
THERAPY WITH CERTOLIZUMAB PEGOL AND OTHER TNF-A INHIBITORS IN ELDERLY PATIENTS WITH RHEUMATOID ARTHRITIS: RESULTS FROM THE CORRONA REGISTRY
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OBJECTIVES: To describe baseline characteristics of elderly patients with Rheumatoid Arthritis (RA) initiating therapy with Certolizumab Pegol (CZP) and other TNF-a inhibitors (TNFi). **METHODS:** Cross-sectional analysis of RA patients older than 65 years of age, initiating CZP or another TNFi following enrollment in the CORRONA registry. Baseline demographic and clinical characteristics of included patients were assessed. Each characteristic was compared between CZP and other TNFi initiators using either Student's two-sample t-test or the chi-square test. **RESULTS:** 1062 initiations of TNFi in RA patients older than 65 years were analyzed; 136 (12.8%) patients initiated CZP and 926 (87.2%) another TNFi. Baseline characteristics for CZP initiators (versus other TNFi): age (mean±Standard deviation (SD)) 72.2±6.4 (vs. 72.1±6.3, p>0.05), female 72.8% (vs. 74.6%, p>0.05), disease duration 12.1±9.9 (vs. 13.5±11.3, p>0.05), baseline CDAI 23.8±14.4 (vs. 18.0±12.9, p: <0.001), baseline mHAQ 0.50±0.51 (vs. 0.46±0.50, p>0.05). At the time of CZP initiation 45.9% of patients had high disease activity and 39.8% had moderate disease activity by CDAI (vs 32.8% and 33.7 respectively for other TNFi initiators, p: <0.0001). Concomitant methotrexate use was present in 49.3% of CZP initiators (vs 63.3 for other TNFi, p 0.002). In 40.4% of CZP initiators, CZP was used after failure of two or more prior biologics (vs 30.2% in other TNFi initiators, p: 0.026). **CONCLUSIONS:** The present descriptive analyses suggest that elderly CZP initiators have similar demographic characteristics with initiators of other TNFi. However, CZP is used more frequently after prior failure to 2 or more TNFi, is more commonly given as monotherapy, and initiated in patients with a higher mean disease activity compared to other TNFi.

PMS12
EPIDEMIOLOGY AND BIOLOGIC TREATMENT PATTERNS OF SYSTEMIC JUVENILE IDIOPATHIC ARTHRITIS IN ONTARIO
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OBJECTIVES: The prevalence of juvenile idiopathic arthritis (JIA) is approximately 3.3/1000 children and 10-15% have the systemic form (SJIA). Biologics, specifically anti-IL1 and anti-IL6 therapy have dramatically reduced the prolonged use of corticosteroids and therefore decreased the associated morbidity including growth failure, cataracts, fractures and body image problems. This study aims to determine the prevalence of SJIA and biologic use in SJIA in Ontario. **METHODS:** All patients seen at the Rheumatology Clinic of the Hospital for Sick Children (SickKids), Toronto with a diagnosis of SJIA from December 1986 to January 2013 were eligible. Exclusion criteria: Diagnosis not confirmed, <1 year follow-up, <1 visit per year and unable to obtain complete medical record. Data for Ontario SJIA prevalence was estimated through personal communication with all practicing pediatric rheumatologists in Ontario. **RESULTS:** The cohort consisted of 268 SJIA patients which represented 13% of the total JIA cohort. Since 2012, when anti-IL-1 and anti-IL-6 medications were readily available in Ontario, 12/23 (52%) of newly diagnosed patients received either anti-IL-1 or anti-IL-6 (11/12 received anti-IL-1 therapy). In the other 3 pediatric rheumatology centres in Ontario, 9 additional SJIA patients were diagnosed and 3 received anti-IL-1 and 2 anti-IL-6. Medication choice was based on the patient's drug coverage, patient/parent preference for intravenous vs. subcutaneous mode of administration and distance from an infusion centre. No other biologic (anti-TNF for example) was started in any of these patients. **CONCLUSIONS:** In Ontario there are approximately 150 patients with SJIA followed by pediatric rheumatologists. Although this group constitutes a small proportion of the total JIA population, they require more intensive therapy with 50% treated with a biologic as compared to 10-15% of total all JIA patients currently followed at SickKids.

PMS13
STUDY ON MECHANISM OF TYPE 2 DEIODINASE GENE AND ERK SIGNAL TRANSDUCTION IN KASHIN-BECK DISEASE
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OBJECTIVES: Kashin-Beck disease (KBD) is an endemic, deformable, and chronic osteoarthropathy prevailing in selenium (Se)-deficiency regions, while its etiopathogenesis maintains obscure. Type 2 Deiodinase (DIO2) is an important Se-dependent antioxidant enzyme and there are many polymorphisms in DIO2 gene, among which, Thr92Ala rs225014 has been studied widespread in diseases. In many different cells, ERK signalling pathway palys a role in anti-apoptosis and decreased ERK activity is necessary for apoptosis. Therefore, we investigated possible association between DIO2 Thr92Ala and susceptibility to KBD in a Chinese population. To explore molecular mechanism of cartilage apoptosis and role of Se in prevention in KBD, expression of signal molecules of ERK pathway in controls and KBD patients are detected and Na_2SeO_3 are added to explore it's effect on ERK pathway. **METHODS:** 218 KBD patients and 209 age and sex matched controls were enrolled and served as KBD and control group respectively. Polymerase Chain Reaction-Restriction Fragment Length Polymophism (PCR-RFLP) is used to analyze DIO2 Thr92Ala polymorphism. Real-Time PCR is used to detect DIO2 mRNA. Western-blot is used to detect expression of signal molecules of ERK transduction pathway. **RESULTS:** No difference were found in genotypic and allelic frequency of DIO2 Thr92Ala between KBD and control group ($P>0.05$). DIO2 mRNA level of cartilage tissue was significantly different between KBD and controls ($P<0.05$). Expression of pRaf-1, pMek1/2 and pErk1/2 decreased significantly in KBD patients (0.72~, 0.78~ and 0.28 fold respectively, $P<0.05$) compared with controls. **CONCLUSIONS:** no association was found between DIO2 Thr92Ala polymorphism and KBD incidence. Expression of DIO2 mRNA in KBD patients decreased significantly coampared with controls. Changes of apoptosis-related molecules on ERK signaling pathway in KBD patients suggested that ERK signaling pathway might play important roles in molecular biology mechanism of KBD, and Na2SeO3 could promote activation of pRaf-1 pMek1/2 and pErk1/2. *This research is supported by National Natural Science Foundation (No. 30671820 81172610).

MUSCULAR-SKELETAL DISORDERS – Cost Studies

PMS14
BUDGET IMPACT OF CONVERTING STANDARD TREATMENT OF FLAIL CHEST FROM SUPPORTIVE THERAPY TO SURGICAL FIXATION WITH CONTOURED TITANIUM PLATES IN CANADIAN HOSPITALS
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OBJECTIVES: Flail chest occurs in 6-15% of patients sustaining blunt chest wall trauma and can be life-threatening. It is typically managed through supportive therapies (e.g. ventilation, pain control) but an increasing body of evidence shows decreased patient mortality and morbidity with rib fixation surgery. The objective of our study was to evaluate the budget impact of changing the treatment for flail chest from supportive therapy to surgical management with contoured titanium plates in a Canadian hospital. **METHODS:** A budget impact model was created using clinical and economic data obtained from peer-reviewed literature, the Ontario Case Costing Initiative and case costing data from a large Canadian hospital. A 2013 meta-analysis was used to provide efficacy data on the reduction of health care resources associated with surgical management. The outcomes are reflective of a hospital that treats 10 patients with flail chest per year. The model takes into consideration costs associated with surgery, length of stay and the common complications associated with flail chest. A multivariate sensitivity analysis utilizing a Monte Carlo simulation was conducted on economic and clinical parameters to ensure robustness. **RESULTS:** The model found that shifting the treatment of flail chest from supportive to surgical management decreased the number of ventilation days from 13.9 to 6.4 and the total hospital stay from 27.2 to 18.4 days. It also found a reduction in the incidence of complications such as tracheostomies from 78.94% to 18% and pneumonia from 89.47% to 62%. Accounting for the additional costs associated with fixation devices and surgical management, the model establishes that surgical rib fixation for flail chest has the potential to provide a Canadian hospital with an annual net cost savings of CAD$214,660. **CONCLUSIONS:** Shifting the treatment of flail chest from supportive to surgical management with contoured titanium plates is a cost-effective solution for Canadian hospitals.

PMS15
BUDGET IMPACT ANALYSIS OF APIXABAN VERSUS ENOXAPARIN IN PATIENTS UNDERGOING TOTAL HIP OR KNEE REPLACEMENT IN COLOMBIA
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OBJECTIVES: The aim of this analysis is to estimate the budget impact of apixaban compared with enoxaparin in patients undergoing total knee replacement (TKR) or total hip replacement (THR) in Colombia. **METHODS:** A model was built with a time horizon of five years. The comparators were: apixaban (2.5 mg BID) and enoxaparin (40 mg OD). The number of expected cases was calculated from the population census (2011) considering a growth rate of 1.2 % and an annual frequency of 0.015 % for TKR and 0.016 % for THR, which were taken from a health insurance company in Colombia with over 1,800,000 affiliates nationwide. The duration of treatment for patients undergoing TKR (12 days) or THR (35 days) and safety data were taken from the literature. The analysis used the third payer perspective including direct medical costs and expressed in 2013 $US. The costs were taken from SISMED for drugs and SOAT tariff for medical procedures. Discount rate of 3 % was applied. The market share was estimated based on SISMED and the projected demand validated by expert's opinions. **RESULTS:** In a period of five years, if apixaban gets an 18 % of the market that currently has enoxaparin, the decrease in over total annual costs would be 8.8 % ($ US 5,052,857). The reduction in costs is due to fewer complications (VTE, pulmonary embolism and bleeding) in patients who were administered apixaban and a lower treatment day cost compared with enoxaparin. **CONCLUSIONS:** The inclusion of apixaban in the health care reimbursement list, as thromboprophylactic treatment for patients undergoing TKR or THR, decreases total costs of care for the health system in Colombia.

PMS16
BUDGET IMPACT ANALYSIS OF TOCILIZUMAB IN RHEUMATOID ARTHRITIS (RA) IN COLOMBIA
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OBJECTIVES: To estimate the economic impact for Colombian health budget by including frontline tocilizumab used as monotherapy or in combination with methotrexate in patients with RA refractory to treatment with non-biologic DMARDs. **METHODS:** The population over 18 years reported by DANE, for the period 2013-2017 was used as population risk of developing RA. This was discriminated by age, sex and type of affiliation. The target population were considered patients over 18 years with RA refractory to treatment with non-biologic DMARDs. We used a prevalence of 0.5% and a range for sensitivity analysis of 0.25% and 1%; the percentage of patients with RA using biological (4.7%) corresponded to that reported by literature. Intervention evaluated was: tocilizumab 8mg/Kg each 4 weeks and tocilizumab 8mg/Kg each 4 weeks +metotrexate 15 mg/week. Actual technology: adalimumab 40 mg/ sc/biweekly +metotrexate 15 mg/week; adalimumab 40 mg/ sc/biweekly; etanercept 50 mg/sc/week +metotrexate 15 mg/week; etanercept 50 mg/ sc/week; infliximab 3 mg/kg IV induction regimen at 0, 2 and 6 weeks